

PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

Improvements in or relating to Liquid Flow Control Valves

We, J. COWARD & Sons Limited, a British Company, of 15/33 Nelson Street, London, do hereby declare the invention for which we claim protection:

5 In a valve assembly for improvements in or relating to liquid flow control valves and for one or more objects to provide a simple and inexpensive valve arrangement which is effective in operation. A further feature is to provide a means for controlling the valve which may be a domestic application.

10 In accordance with the invention there is provided a liquid flow control valve comprising a flexible pipe and connections for passing a supply of fluid through the pipe and for one another about a pivot axis extending longitudinally of the length of the pipe. The spaced connections are so arranged that when the pipe is bent the flexible pipe and one another to bend the flexible pipe as at a point A or fold flexible surfaces to interrupt completely the flow passage in the pipe. By varying the degree of relative angular displacement between the two connections the flow passage can be varied to accommodate a greater or less extent as due variation between full opening and complete closure is produced.

15 In a preferred form of construction the valve comprises two rigid plates or strips hinged to one another and respectively supporting spaced end portions of the flexible pipe and the end portions may be formed as rings having a central opening through which the pipe or strips may be passed. The latter then passes about one plate or strip through its opening, and the hinge connecting the two plates or strips being connected as a wrist bearing, one plate or strip and through the other thereto. The plates or strips are arranged

to be capable of shifting so that the angle subtended between them on the side of the pipe can be varied from 180° to an acute angle up to 90°. In the former setting the pipe will be fully blocked to close off the passage through it.

20 In a conventional construction the hinged connections for the pipe are sprung operated to move them to the closed setting and are arranged to be held in this setting by a bias or spring force away from the closed setting against the action of the spring. The operation of the valve may be controlled manually by hand or by a mechanical control or it may be controlled automatically by a power operated cam or lever.

The invention is particularly applicable in a liquid control valve for a washing machine and is particularly suitable for use in a dish washing machine. The invention accordingly includes a washing machine incorporating a valve as herein described for the control of the flow of water thereto. A particular application of the invention will be to a dish washing machine and it may be employed for controlling the supply of detergent to the washing machine liquid or other additive to the rinsing water. The invention is also conveniently arranged to be capable of being set to the required degree of opening to suit particular conditions so that just the required quantity of additive will be supplied at each cycle and the valve may be arranged to be equipped with one valve according to the invention respectively controlling the amount of the supply of detergent and other additive.

25 In applying the improved valve to a dish washing machine the pump which supplies liquid to the washing chamber conveniently has its junctions at its inlet, one arm of the junctions being connected to a water supply and the other arm of the junctions being connected to a wrist bearing. The plates or strips are arranged

[Prior art, 64]

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being connected to a supply of additive through the valve.

30 A liquid flow control valve comprising substantially as hereinabove described with reference to the accompanying drawings.

35 11. A washing machine embodying a liquid control valve constructed substantially as hereinabove described with reference to the accompanying drawings.

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London and London.

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being connected to a supply of additive through a valve as above described. In order that the present invention may be more readily understood reference will now be made to the accompanying drawings in which:

30 FIG. 1 is a side view of a valve assembly on the invention in open position.

FIG. 2 is a similar view to that of FIGURE 1.

35 FIG. 3 is a cross-sectional elevation of a portion of a dish washing machine.

40 In the drawings a pair of plates numbered 1 and 2 are hinged together so that when plates 1 and 2 have 45° and 45° bending cycles attached to them respectively. These rings are arranged to fit the plates conveniently by resiliently hinged and are respectively supported by a central member 3.

45 Located between the plates 1 and 2 is a spring 6 which the plates are adapted to press against the central member 3.

50 Located on the plate 1 is a screw threaded bush 7 and a tube 8 which is passed through a hollow central member 3 hinged together with the screw 7.

55 It will be understood that when the plate 1 is moved from a position illustrated in FIGURE 1 to a position illustrated in FIGURE 2 the tube 8 will be bent at an angle of 90°.

60 FIGURE 3 shows a cross-section of the tube 8 which is opened to allow supply through it of the additive liquid. The extent to which the valve is opened is governed by adjustment of the setting of the screwed element 8.

65 WHAT WE CLAIM IS:—

1. A liquid flow control valve comprising a flexible pipe and spaced end portions of

2. A valve according to Claim 1 wherein the spaced end portions are hinged to one another and respectively supporting the connections for portions of the flexible pipe.

3. A valve according to Claim 1 wherein the pivotal axis of hinging of the connections to the plates is displaced out of the line of the plates.

4. A valve according to Claim 1 or Claim 3 comprising two rigid plates or strips hinged to one another and respectively supporting the connections for portions of the flexible pipe.

5. A valve according to Claim 3 wherein the connections are hinged to one another and the hinge is placed adjacent to plates 2 so that the extent to which the tube is opened or closed may be adjusted.

6. A valve according to Claim 3 or Claim 5 wherein the plates or strips are arranged to vary the angle subtended between them on the side of the pipe from 180° to some acute angle of about 60°.

7. A valve according to any of the preceding Claims wherein the hinged connections for the pipe are sprung operated to urge them to the closed setting and are arranged to be operated against the spring action to move them from this setting.

8. A valve according to Claim 6 wherein the hinged connections for the pipe are arranged for operation against the spring action by means of a cam or lever.

9. A washing machine comprising a liquid

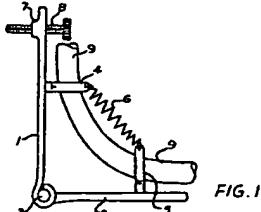


FIG. 1.

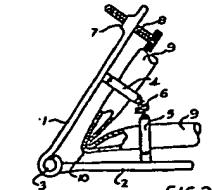


FIG. 2.

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the Original as it appeared on  
Sheets 1 & 2

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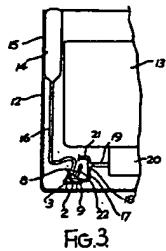
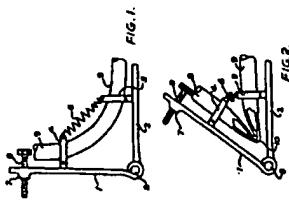
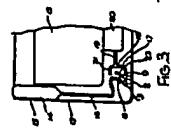


FIG. 1.

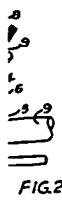


FIG. 2.